# Developmental Biology

*An International Journal*
*Published under the Auspices of the*
*Society for Developmental Biology*

EDITOR-IN-CHIEF: Elizabeth D. Hay

ASSOCIATE EDITORS

Igor B. Dawid
Gerald D. Fischbach
Donald A. Fischman
John W. Saunders, Jr.
Judson D. Sheridan
Herbert Stern
Robin A. Wallace

ASSISTANT EDITOR: Mary J. Powers

FEATURE EDITORS

Eugene Bell
Francis J. Manasek

ADVISORY EDITOR

Mac V. Edds, Jr.

VOLUME 35, 1973

ACADEMIC PRESS
*New York and London*

*A Subsidiary of Harcourt Brace Jovanovich, Publishers*

Copyright © 1973 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

# Contents of Volume 35

Number 1, November 1973

*Full Papers*


Samuel Chacko. DNA Synthesis, Mitosis, and Differentiation in Cardiac Myogenesis ..... 1

Donald W. Jared, James N. Dumont, and Robin A. Wallace. Distribution of Incorporated and Synthesized Protein among Cell Fractions of *Xenopus* Oocytes .. 19

N. H. Verdonk. Gene Expression in Early Development of *Lymnaea stagnalis* .... 29

Carol J. Chihara and James W. Fristrom. Effects and Interactions of Juvenile Hormone and β-Ecdysone on *Drosophila* Imaginal Discs Cultured *in Vitro* ..... 36

Michael Ashburner. Sequential Gene Activation by Ecdysone in Polytene Chromosomes of *Drosophila melanogaster*. I. Dependence upon Ecdysone Concentration ..... 47

L. W. Lee and J. C. Gerhart. Dependence of Transdetermination Frequency on the Developmental Stage of Cultured Imaginal Discs of *Drosophila melanogaster* .. 62

H. P. Bernhard, G. J. Darlington, and F. H. Ruddle. Expression of Liver Phenotypes in Cultured Mouse Hepatoma Cells: Synthesis and Secretion of Serum Albumin ..... 83

Albert Harris. Location of Cellular Adhesions to Solid Substrata ..... 97

Adolfo Ruiz-Carrillo and Jaime Palau. Histones from Embryos of the Sea Urchin *Arbacia lixula* ..... 115

John E. Morris. Histogenesis and Dependent Glutamine Synthetase Inducibility in Embryonic Neural Retina. Irreversible Inhibition of Differentiation by 5-Bromodeoxyuridine ..... 125

Florence Moog, Alex E. Denes, and Patricia M. Powell. Disaccharidases in the Small Intestine of the Mouse: Normal Development and Influence of Cortisone, Actinomycin D, and Cycloheximide ..... 143

Edward M. Wolin, Hans Laufer, and David F. Albertini. Uptake of the Yolk Protein, Lipovitellin, by Developing Crustacean Oocytes ..... 160


*Brief Notes*


Raymond L. Burich. The Development of Lactate and Malate Dehydrogenases in the C57BL/6 Mouse Kidney ..... 171

F. J. Dye. The Effects of Cytochalasin B and Dimethyl Sulfoxide on the Movement of Mouse Kidney Cells. I. Effect on the Outgrowth of Cells ..... 176

A. Graessmann, M. Graessmann, and M. Fogel. The Relationship of Polyoma Virus-Induced Tumor (T) Antigen to Activation of DNA Synthesis in Rat Myotubes ..... 180


*Features*


News, Opinion and Letters ..... f-1

Current Literature ..... f-6

Editor's Index ..... f-10

Number 2, December 1973

*Full Papers*

Peter B. Armstrong and Margaret T. Armstrong. Are Cells in Solid Tissues Immobile? Mesonephric Mesenchyme Studied *in Vitro* ..... 187

Robert A. Kosher, James W. Lash, and Ronald R. Minor. Environmental Enhancement of *In vitro* Chondrogenesis. IV. Stimulation of Somite Chondrogenesis by Exogenous Chondromucoprotein ..... 210

Jason Wolfe. Conjugation in *Tetrahymena*: The Relationship between the Division Cycle and Cell Pairing ..... 221

Thomas F. Linsenmayer, Bryan P. Toole, and Robert L. Trelstad. Temporal and Spatial Transitions in Collagen Types during Embryonic Chick Limb Development ..... 232

Mary Ann Handel, John Papaconstantinou, David P. Allison, Emilia M. Julku, and Eugene T. Chin. Synthesis of Mitochondrial DNA in Spermatocytes of *Rhynchosciara hollaenderi* ..... 240

Robert L. Seecof, Inés Gerson, J. James Donady, and Raymond L. Teplitz. *Drosophilia* Myogenesis *in Vitro*: The Genesis of "Small" Myocytes and Myotubes ..... 250

Jonathan Van Blerkom, Cole Manes, and Joseph C. Daniel, Jr. Development of Preimplantation Rabbit Embryos *in Vivo* and *in Vitro*. I. An Ultrastructural Comparison ..... 262

David Ziegler and Yoshio Masui. Control of Chromosome Behavior in Amphibian Oocytes. I. The Activity of Maturing Oocytes Inducing Chromosome Condensation in Transplated Brain Nuclei ..... 283

Rolf Borchert and James D. McChesney. Time Course and Localization of DNA Synthesis during Wound Healing of Potato Tuber Tissue ..... 293

Jean-Paul Revel, Phyllis Yip, and Lih Lih Chang. Cell Junctions in the Early Chick Embryo—A Freeze Etch Study ..... 302

Stephen Meier and Elizabeth D. Hay. Synthesis of Sulfated Glycosaminoglycans by Embryonic Corneal Epithelium ..... 318

Francis J. Manasek, Margaret Reid, Walter Vinson, Jerome Seyer, and Randall Johson. Glycosaminoglycan Synthesis by the Early Embryonic Chick Heart ..... 332

K. R. Robinson and L. F. Jaffe. Ion Movements in a Developing Fucoid Egg ..... 349

*Brief Notes*

J. A. Thomsen. Differential Replication of Ribosomal DNA during Larval Development in *Calliphora* (Diptera) ..... 362

B. Barbiroli, A. Corti, M. G. Monti, and M. S. Moruzzi. Incorporation of Labeled Uridine into Acid–Soluble and Acid–Insoluble Materials during Development of Chick Embryo ..... 366

James W. Lash, Karen Rosene, Ronald R. Minor, Jon C. Daniel, and Robert A. Kosher. Environmental Enhancement of *in vitro* Chondrogenesis. III. The Influence of External Potassium Ions and Chondrogenic Differentiation ..... 370

Helene E. Schaeffer, Barry E. Schaeffer and Irving Brick. Electrophoretic Mobility as a Function of pH for Disaggregated Amphibian Gastrula Cells. 376

Bernadette Limbourg and Marko Zalokar. Permeabilization of *Drosophila* Eggs ..... 382

Roslyn Weinstein Orkin, Thomas D. Pollard, and Elizabeth D. Hay. SDS Gel Analysis of Muscle Proteins in Embryonic Cells ..... 388

Author Index ..... 395
Subject Index ..... 397

*Features*

News Opinion and Letters ..... f-13
Current Literature ..... f-19
Editor's Index ..... f-22